

LISTING OF THE CLAIMS

1-5. (Canceled)

6. (Previously presented) The apparatus according to claim 11, including an opaque shoe for pressing in light-proof manner around the window of the vessel provided with the filling opening for passing light between the vessel and the photometric means.

7. (Previously presented) The apparatus according to claim 11, including a plate for receiving the washing means and the photometric means.

8. (Previously presented) The apparatus according to claim 11, wherein the photometric means include moving equipment for pressing the shoe against the window of the vessel.

9. (Previously presented) The apparatus according to claim 11, including a shutter for optically isolating a photoelectric detector and means for measuring electrical values delivered by the photoelectric detector while it is immersed in the dark, the shutter being closed.

10. (Previously presented) The apparatus according to claim 9, wherein movement of moving equipment serves to close or open the shutter.

11. (Previously presented) An automatic apparatus for immunological assay, the apparatus comprising:

- means for supporting, guiding, and stepwise displacement of vessels, or of sets of reaction vessels along a path having a predetermined number of positions,
- means for supporting samples to be analyzed,
- means for supporting reagents,
- means for taking determined quantities of samples and of reagents and for injecting the quantities taken into the reaction vessels,
- means for washing the vessels,
- means for reading results,
- means for feeding the sets of reaction vessels and for ejecting the sets of vessels,
- means for forming a temporary dark chamber with the vessel, the temporary dark chamber being proof against external light,
- photometric means for measuring an intensity of light, wherein the vessel includes walls for receiving a sample to be tested, a test reagent, and a substrate coupled with a chemiluminescent substance, and

- a filling opening, wherein the walls are proof against any light emitted by the chemiluminescent substance, apart from a window for reading the intensity of any light emitted by a reaction mixture formed by the sample to be tested, the reagent, and the substrate, and wherein the window corresponds to the filling opening of the vessel and wherein the window is surrounded by a substantially plane zone against which a light-proof shoe is pressed, and
- a light source for illuminating, on command, outside of the dark chamber, and
- a photometric means so as to enable the dark chamber to be tested for light-tightness, the immunological assay being rejected if the photometric means detects light emitted by the light source.

12-14. (Canceled)

15. (Previously presented) The apparatus according to claim 9, wherein the photoelectric detector is a photomultiplier.

16. (Previously presented) A reaction vessel assembly for an automatic chemiluminescence measuring apparatus for immunological assay which includes a photometric device, the assembly comprising:

a vessel comprising walls for receiving a sample to be tested, a test reagent, and a substrate coupled with a chemiluminescent substance, and also a filling opening, wherein the walls are proof against any light emitted by the chemiluminescent substance, and the filling opening corresponds to a window for reading an intensity of any light emitted by a reaction mixture formed by the sample to be tested, the reagent, and the substrate, and wherein the filling opening is completely surrounded by a planar rim; and

a light-proof shoe that is proof against external light and that is directly pressed against the planar rim to form a temporary dark chamber, the shoe being provided with a central opening for passing light between the vessel and the photometric device.

17. (Previously presented) An automated chemiluminescent apparatus for immunological assay, the apparatus comprising:

means for supporting, guiding, and stepwise displacement of vessels, or of sets of reaction vessels along a path having a predetermined number of positions,
means for supporting samples to be analyzed,
means for supporting reagents,
means for taking determined quantities of samples and of reagents and for injecting the quantities taken into the reaction vessels,
means for washing the vessels,
means for reading a result,
means for feeding the sets of reaction vessels and for ejecting the sets of vessels,
means for forming a temporary dark chamber with the vessel, the temporary dark chamber being proof against external light, the dark chamber having photometric means for measuring an intensity of light, wherein the vessel includes walls for receiving a sample to be tested, a test reagent, and a substrate coupled with a chemiluminescent substance, and
a filling opening, wherein the walls are proof against any light emitted by the chemiluminescent substance, and the filling opening corresponds to a window for reading the intensity of any light emitted by a reaction mixture formed by the sample to be tested, the reagent, and the substrate, wherein the filling opening is completely surrounded by a planar rim, and
a light proof shoe provided with a central opening for passing light between the vessel and the photometric means and being directly pressed against the planar rim.

18. (Canceled)

19. (Previously presented) The apparatus according to claim 17, including a plate for receiving the washing means and the photometric means.

20. (Previously presented) The apparatus according to claim 17, wherein the photometric means include moving equipment for pressing the shoe against the window of the vessel.

21. (Previously presented) The apparatus according to claim 17, including a shutter for optically isolating a photoelectric detector and means for measuring electrical values delivered by the photoelectric detector while it is immersed in the dark, the shutter being closed.

22. (Canceled)

23. (Previously presented) A method for performing immunological assays that detects light emitted by a reaction mixture consisting of a sample, a reagent and a chemiluminescent substance, said method being performed with an automated chemiluminescent apparatus as set forth in claim 17, said method comprising:

- combining a sample and a reagent in a chamber of the reaction vessel having a filling opening;
- adding a chemiluminescent substance to the chamber;
- pressing a detector directly against the filling opening;
- measuring the light emitted from the chamber when the detector is pressed against the filling opening to provide a first reading;
- illuminating a light source external to the chamber;
- measuring the light emitted from the chamber with the light source illuminated to provide a second reading; and
- comparing the first reading and the second reading to determine the light-tightness of the chamber.